

Claims

1. Process for the regeneration of a catalyst, said catalyst comprising at least one precious metal on an amorphous silica-alumina support, in which process the catalyst is impregnated with an acid, ^{in liquid state} followed by reduction or oxidation of the impregnated catalyst at a temperature above 200°C.
2. Process according to claim 1, wherein the precious metal is at least one of Pt, Pd, Au, Ir, Ru, Rh, Re, Os and Ag, preferably Pt and/or palladium.
- 10 3. Process according to claim 1 ~~or 2~~, wherein the degree of dispersion is increased after the regeneration.
4. Process according to ^{Claim 1} ~~claims 1-3~~, wherein the acid impregnated catalyst is reduced in a flow of hydrogen gas.
5. Process according to ^{Claim 1} ~~claims 1-4~~, wherein the acid
- 15 impregnated catalyst is oxidised in a flow of dry (<0.1 vol.% of water) air, followed by reduction.
6. Process according to ^{Claim 1} ~~claims 1-5~~, wherein the reduction and or oxidising step are carried out at a temperature of between 250 and 600°C.
- 20 7. Process according to ^{Claim 1} ~~claims 1-6~~, wherein the silica-alumina support has been prepared using a sol-gel method.
8. Process according to ^{Claim 1} ~~claims 1-7~~, wherein the support has an Si-Al atomic ratio of from 0.1 to 300.
9. Process according to ^{Claim 1} ~~claims 1-8~~, wherein the catalyst
- 25 has a precious metal content of from 0.01 to 5 wt.%, calculated on the basis of the weight of reduced catalyst.
10. Process according to ^{Claim 1} ~~claims 1-9~~, wherein the catalyst is impregnated with an aqueous solution of the acid.
11. Process according to ^{Claim 10} ~~claims 1-10~~, wherein the acid is
- 30 selected from the group of HCl, H₃PO₄, H₂SO₄, HNO₃, HBr and combinations thereof.

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12. Process according to ^{claim 1} ~~claims 1-11~~, wherein the amount of acid calculated on the basis of a ratio of equivalents of acid to atoms of precious metal is between 0.1 and 100, preferably between 0.5 and 10.
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- 5 13. Process according to ^{claim 1} ~~claims 1-12~~, wherein prior to the impregnation, carbonaceous deposits on the catalyst are burned off.
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- 10 14. Process according to ^{claim 1} ~~claim 1-13~~, wherein the regeneration is carried out in a reactor, separate from the reactor in which the catalyst is used.
- 15 15. Process according to ^{claim 1} ~~claims 1-14~~, wherein the catalyst is a used catalyst from a process in the group consisting of hydrogenation, hydro-isomerisation, hydro-desulfurisation, hydrodewaxing and catalytic reforming.
- 15 16. Process for hydrogenation, hydro-isomerisation, hydro-desulfurisation or hydrodewaxing, comprising treating the feedstock in the presence of a catalyst that has been regenerated using the process of ^{claim 1} ~~claims 1-15~~.
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